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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/659,431	09/08/2000	Srinath Hosur	TI-29648	4265

23494 7590 11/03/2003

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EXAMINER

LIU, SHUWANG

ART UNIT	PAPER NUMBER
2634	4

DATE MAILED: 11/03/2003.

Please find below and/or attached an Office communication concerning this application or proceeding.

MR

Office Action Summary

Application No.

09/659,431

Applicant(s)

HOSUR ET AL.

Examiner

Shuwang Liu

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-70 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. Figures 2 and 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:

On page 1, line 4, enter the application number and filed date.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical

Art Unit: 2634

Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Golden et al. (US 5,819,168).

As shown in figures 1-3, Golden et al. discloses a method of multipath combining, comprising:

(1) regarding claim 1:

forming at least one matrix of covariances (R_{xx} or R_{i+n}) of multipath inputs (column 5, line1);

finding an eigenvector of the matrix (equations 13, column 5, lines 4-27); and

combining (see figure 1) the multipath inputs relatively weighted according to the components of eigenvector (equations 15-17, column 5, line 55-column 6, line 18, equation 20, column 7, lines 6-26 and column 3, lines 7-15).

5. Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Golden et al. (US 5,819,168).

As shown in figures 3- 4, Golden et al. discloses a method of multipath combining, comprising:

(1) regarding claim 1:

forming at least one matrix of covariances (R_A) of multipath inputs (column 6, lines 23-29);

finding an eigenvector of the matrix (column 6, lines 23-36); and

combining (254 in figure 3) the multipath inputs relatively weighted according to the components of eigenvector (see $W_1 \dots W_n$).

(2) regarding claim 2:

wherein the eigenvector is associated with a maximal eigenvalue of the matrix (see 274 in figure 4).

6. Claims 1 and 2 are rejected under 35 U.S.C. 102(a) as being anticipated by Brunner et al. (IEEE, 3/99).

As shown in figure 2, Brunner et al. discloses a method of multipath combining, comprising:

(1) regarding claim 1:

forming at least one matrix of covariances (R_{SIN}) of multipath inputs (equation 4);

finding an eigenvector of the matrix (see contents between equations 6 and 7 on page 2384); and

combining (equation 8) the multipath inputs relatively weighted according to the components of eigenvector (see page 2384 and W in equation 8).

(2) regarding claim 2:

Art Unit: 2634

wherein the eigenvector is associated with a maximal eigenvalue of the matrix
(page 2384).

Allowable Subject Matter

7. Claims 4-9 are allowed.
8. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
9. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to teach and suggest a method of multipath combining, comprising forming a first and a second matrix of covariances and an estimation matrix from the first and second matrices as recited in claims.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shuwang Liu whose telephone number is (703) 308-9556.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin, can be reached at (703) 305-4714.

Any response to this action should be mailed to:

Application/Control Number: 09/659,431
Art Unit: 2634

Page 6

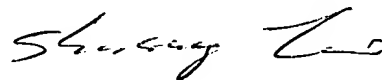
Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9306 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



Shuwang Liu
Primary Examiner
Art Unit 2634

October 29, 2003